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ABSTRACT

In spring 1983, a study was conducted at a military school to analyze motivation in four self-paced computer-managed instruction (CMI) courses, in which a computer was used to predict time for course completion, guide students, monitor their progress, assign tests, and grade results. In the two classes serving as control groups, no additional motivational stimuli were applied other than standard incentive days off. In the two experimental classes, specific motivational stimuli were applied through classroom postings naming students who had improved and accompanying public praise. Progress, learning rate, and progress rate statistics were compared for all four classes at 2-week intervals. Study findings showed that although all four classes began with statistics near or worse than the school average the two experimental classes showed improvement shortly after the motivational stimuli were introduced and that they achieved and maintained better than average learning and progress rates throughout the 8-week research period. In contrast, the two control groups statistics were sporadic and overall remained worse than the school average. Based on study findings, it was recommended that statistics of student progress be provided to instructors on a daily basis, that further research on student motivation be undertaken, and that performance praise be integrated into CMI. (LL)

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# COMPUTER MANAGED INSTRUCTION (CMI)
# AND STUDENT MOTIVATION

Prepared for

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April 23, 1983

VC 830 289

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Chapter 1

# ORIENTATION TO THE PROBLEM

## Authorization of the study

This report on Computer Managed Instruction (CMI) and Student Motivation is submitted on April 23, 1983, to Dr. Darlene Dunning, Instructor of VES 598, Special Investigations in Vocational, Occupational, and Career Education. Authorization for the report was given on February 27, 1983 by Dr. Dunning by Independent Study Variable Credit Contract.

## Statement of the problem

The problem of this study is to determine whether or not students in a basically self-paced course such as a CMI course, can become motivated to excel. The problem is aggravated by the fact that instructors have very little interaction with students on a normal day to day operation and that little opportunity exists for positive reinforcement of good academic progress.

Statistical data on two classes will be compared daily, achievers identified and praised publicly for their performance. Class averages for these two classes will be compared every two weeks with two other classes in which no change has been implemented. If this course contains

the necessary material for proper motivation, there will be no significant difference in the statistics due to any new motivational efforts.

Scope of the problem

Much has been written in recent years about computer assisted instruction, whereas, a student is placed in front of a computer terminal board, eyes large with anticipation of what magical things are about to transpire. The student has a monitor (or television type screen) and "talks" to the computer as preprogrammed instruction leads the student through the training session. Motivation comes in the form of visual stimulus or sometimes a musical interlude after proper performance.

Sometimes the computer is also programmed to keep track of the students' progress, maintains a memory bank of grades; makes assignments and does a myriad of other mundane tasks needed by the instructor to insure each student is progressing satisfactorily. This part of the program is called Computer Managed Instruction or CMI for short.

In some cases, the CMI portion is used without the computer assisted instruction. The student has no terminal and no monitor to watch. This may be less exciting to the student, but is, none the less, practical and far reaching, saving a tremendous amount of money by allowing a large number of students to be trained with far less equipment as

well as fewer instructors. This type of training does not come without problems, however.

As I have already intimated, in CMI type courses, a computer is used to predict the time required for a student to complete the course, guide and track the student, assign tests and grade results. The students use written course materials as in any other self-paced course. The written materials outline lesson objectives and gives instructions on how to progress through the course. There is also a study guide and lesson books with all necessary lesson material. An instructor is in place to assist, counsel, and answer questions the student may have during progression through the course. Very little interaction occurs between student and instructor until or unless trouble is encountered with course material. Once the problem has been resolved, the student returns to his studies on his own.

Incentive to complete this type course as quickly as possible is generally of two types; fear (or force) and incentive days off. Since the school in which I am doing this research is a military one, fear is a real (albeit, negative) motivator, but not one which tempts a student to excel. Just to do the minimum required to stay out of trouble.

That leaves only one real motivator to do well, which is the incentive day off. This is obtained by a student who progresses to a point thirty hours or more ahead

of the time the computer has predicted. The main problem here is that it may take a number of weeks before that point is reached. Very few ever reach that point and it, therefore, is no incentive at all for a large portion of students. A number of psychologists have reported that a delay of positive reinforcement for good behavior may eliminate any conditioning that may be attempted. It has been pointed out in a Naval Technical Training Command course, "to be most effective, praise for good performance should be given immediately after the good performance. The longer you delay rewarding a positive behavior, the less impact the reward will have on student motivation."[1]

What, then, can be done to cause a student to want to excel in a basically self-paced course? The answer to that question is the purpose of this study. Positive motivational efforts will be used in two classes while being matched statistically with two other classes, used as a control group. Additionally, matching will occur between these classes and the entire school. The methods and procedures will be explained in chapter 3.

[1] The instructor as an evaluator. Computer Managed Instruction, Module 7. Published by direction of Chief of Naval Training. CNTT-A205, undated.

## Chapter 2

## REVIEW OF RELATED RESEARCH

Motivation is such a complex human emotion, it has been discussed in many books by many prominent writers. An essential prelude to any discussion about motivation is an explanation of the role of reinforcement in learning. Reinforcement is a somewhat technical term used by psychologists. It refers to any event which follows a behavior and subsequently increases the likelihood that the behavior will occur again. A reinforcer increases the frequency of the behavior it follows. For many, verbal praise is an effective reinforcer. Much research has bee. done on the subject and most of it seems to indicate there are no absolutes and many variables. What motivates one may not another.[2] Within the sphere of motivational determinants any behavior tends to be determined by several or all of the basic needs simultaneously rather than by only one of them. Maslow states, "As an illustration, I may point out that it would be possible (theoretically if not practically) to analyze a single act of an individual, and see in it, the expression of his physiological needs, his safety

[2] C. Anderson and R. Swenson, "The role of motivation in computer-assisted instruction," Creative Computing (October 1982), 134.

needs, his love needs, his esteem needs, and self-actualization."[3]

Since in my study, making an attempt to appeal to all of the needs of the student is beyond possibility, I will narrow the scope to a smaller, more manageable area. According to Maslow, "All people in our society.....have a need or desire for a stable, firmly based, usually high evaluation of themselves for self-respect, or self-esteem, and for the esteem of others."[4] Included are the desires for reputation or prestige, status, fame and glory, dominance, recognition, attention, importance, dignity, or appreciation. It is these needs that this study will attempt to utilize to determine if motivation in a CMI course can be improved. As far as other research is concerned, there is apparently none available. Other research seems to revolve around computer assisted instruction which I have previously explained.

[3] A. Maslow, Motivation and Personality (New York: Harper and Row, Second edition, 1970), p. 55.

[4] Ibid, p. 45.

## Chapter 3

## RESEARCH METHODS

This research will involve four classes of 28 to 30 students each. The class size is variable because a student may enter the course at any time and graduate when the course is completed. Once a student has graduated, that chair is vacant until a new student is started by administration. The classes used in this research are typical and were chosen due to the similarity of their class statistics (computerized). Two of the classes will be the control group wherein no changes will be made and no extra efforts visible to students or instructor will be expended. The two classes which will be the experimental group will have specific motivational stimulus applied in the form of public praise for improvement in daily statistics regardless of how little that improvement has been. Computer statistics for each student will be compared with his or her own statistics from the previous day in the experimental classes. Improvement will be noted, compiled and posted in the classroom, by name. This will be done on a daily basis. At two week intervals, the statistics of all four classes will be compared to determine whether any change is apparent. Additionally, charts will be

constructed to show daily changes compared to the entire school of 25 classes.

Research materials

The research materials for this study are shown in appendices A and B. Appendix A is an example of the computer print-out of students' statistics for one of the classes. Appendix B consists of a computer print-out of class statistics for a number of classes. The print-outs contain more data than is necessary or relevant for this study and will thus be omitted. The parts of these runs that are relevant will be explained in sufficient detail to be clearly understood.

Explanation of materials

Beginning with appendix A, the computer print-out for each class is divided into columns of which we will deal with six: THM/PHM; ADD/LOST; AL/PL; ADJCT/PCT; LR/PR; PROG. It will be noticed that to the right of each students name, there are two lines of information under the column headings, with the exception of the PROG column.

In the THM/PHM column, the top figure corresponds to THM and the bottom figure to PHM. THM means "Time (in) Hours (in the) Module." This is the number of hours that have elapsed since the student began study in a particular module of instruction. The bottom figure

corresponds to the PHM, which means "Predicted Hours (in the) Module." This is the number of hours that have been predicted by the computer for the student to complete the module. These figures are used by the instructor to evaluate how a student is progressing, time-wise, in one (the current) module. The computer will use the figures to compute an average learning rate (LR) and progress rate (PR) when the module has been completed.

In the ADD/LOST column, only the ADD figure will be used in this research. LOST hours are those hours not being used by the computer because these hours are entered by the instructor when a student is not actually in contact with the course (the computer automatically counts the hours as if the student were there as long as the time of day corresponds to that student's shift). ADD hours are those hours that the student was in contact with the course on other than normal class hours. The computer keeps track of six hours per class day automatically. Any hours beyond that must be manually loaded into the computer by means of a transaction. These ADD hours add to the total time in a module and course and are used to compute the learning rate, but not the progress rate. The learning and progress rate, or LR/PR, is explained in detail below.

In the ADJCT/PCT column is shown the computer predicted hours adjusted according to the students' current

learning rate (ADJCT), and the original computer predicted hours assigned at the beginning of the course (PCT). It is the ratio of these two figures that the learning rate (LR) is calculated (ADJCT ÷ PCT).

The LR/PR column shows the learning rate (LR) on top and the progress rate (PR) on the bottom. As indicated above, the learning rate is computed by dividing the adjusted predictor (ADJCT) by the original predictor (PCT). The progress rate (PR) is calculated by first subtracting the ADD hours from the adjusted predictor (ADJCT), then dividing the answer by the original predictor (PCT). It should be understood that the lower their figures, the better the student is progressing.

The PROG column shows the number of hours ahead or behind the original predictor, or in other words, the student's "progress." There will be a plus (+) sign following the number of hours a student is ahead of his predictor or a minus (-) sign following the number of hours if a student is behind. No number in the column indicates the student is not ahead or behind. The PROG column is computed by subtracting ADD hours from AL then dividing the result by PL (PROG=AL-ADD/PL).

let's look at appendix B. The only columns pertinent for this research are the LR and PR columns. These are the average learning and progress rates for each class. All the LR/PR columns for each

student in a class is added together, then the result is divided by the number of students in the class.

Chapter 4

ANALYSIS AND RESULTS

Each students' progress (PROG), learning rate (LR), and progress rate (PR) is compared daily in the classroom for the two test classes. Any positive change (an increase in hours under PROG or a decrease in either LR or PR or any combination of the three) is compiled onto a list. This list is then posted in a conspicuous place in the two experimental classrooms. The students are told what the list represents and are praised publicly if they appear upon it.

The first two weeks

After the first two week period, the two experimental classroom statistics were compared with the control group classes. The results are shown below.

Table 1

| | Learning Rate | | Progress Rate | |
|---|---|---|---|---|
| | Day 1 | Day 10 | Day 1 | Day 10 |
| Test Class A | .96 | .94 | .88 | .86 |
| Test Class B | .95 | .91 | .89 | .84 |
| Control Class C | 1.01 | .99 | .89 | .87 |
| Control Class D | .96 | .95 | .88 | .88 |

As can be seen, the results are interesting, but not conclusive. It will be noted that both test classes did improve both the learning and progress rates. It

should also be noted that Control Class C likewise improved. Control Class D improved the learning rate by only one hundredth and more significantly, did not improve the progress rate at all.

The second two weeks

After the second two week period, Class A has continued to show good improvement while Class B digressed slightly. Control Class C showed a gain in the learning rate but not in the progress rate. This indicates more time was spent in extra study by the students in this class, but no increase in their progress rate was noted. Control Class D showed an insignificant change. The results are shown below.

Table 2

| | Learning Rate | | Progress Rate | |
|---|---|---|---|---|
| | Day 10 | Day 20 | Day 10 | Day 20 |
| Test Class A | .94 | .91 | .86 | .84 |
| Test Class B | .91 | .93 | .84 | .86 |
| Control Class C | .99 | .96 | .87 | .87 |
| Control Class D | .95 | .94 | .88 | .87 |

The third two weeks

After the third two weeks period, dramatic gains continue to grace Test Class A. Class B remained fairly steady. Control Class C lost ground and its learning rate actually rose above the school average. Class D on the other hand, after a poor showing earlier made some gains.

Table 3

| | Learning Rate | | Progress Rate | |
|---|---|---|---|---|
| | Day 20 | Day 30 | Day 20 | Day 30 |
| Test Class A | .91 | .84 | .84 | .78 |
| Test Class B | .93 | .92 | .86 | .86 |
| Control Class C | .96 | .97 | .87 | .87 |
| Control Class D | .94 | .91 | .87 | .84 |

The last two weeks

The final period seems to tell the tale. Class A has lost some ground but has made significant progress over the entire period of this research. Class B has now shown slower but significant improvement. Note also, that both Control Classes have done poorly over this period, although showing temporary improvement at intervals.

Table 4

| | Learning Rate | | Progress Rate | |
|---|---|---|---|---|
| | Day 30 | Day 40 | Day 30 | Day 40 |
| Test Class A | .84 | .86 | .78 | .82 |
| Test Class B | .92 | .90 | .86 | .82 |
| Control Class C | .97 | 1.02 | .87 | .88 |
| Control Class D | .91 | 1.02 | .84 | .92 |

School progress compared on charts

It is interesting to note that very little change is occurring in the learning and progress rate in the rest of the school. In the following charts (following page 17) I have graphically shown the learning and progress rate of the school (includes the averages of 25 classes) in black. Note that the schools averages, both learning rate and

progress rate remains relatively constant. Beginning January 31, 1983 the school learning rate averaged .94 (Chart 1). By March 15 it had increased to .95. The school progress rate on January 31, 1983 was .88. On March 25 it had not changed, remaining, after some minor fluctuation, at .88.

Class A comparisons

Class "A" is shown on the same charts in red. note that Class A began on January 31, 1983 with a higher (worse) learning rate than the school as a whole (.96). By March 14, 1983 this had improved to a .82. Similarly, the progress rate (shown on Chart 2) began equal to the school average of .88. By March 14, 1983, this had improved to .77. (By the way, this is the best progress rate this class has ever enjoyed and it is very close to a school record.) During this time period, students in this class gained 125 hours. Therefore a number of students also gained an incentive day off.

An interesting phenomenon begins to occur after March 15. Note that on both Class A Charts, the averages begin to increase slightly. The cause of this rise, which should be temporary, is due to the more rapid movement of the better students through the course, presumably due to our motivational efforts. Their more rapid graduation removes their statistics from the total, leaving the

statistics of the slower students only, to be used for the new averages. As a result of this study, the number of graduates have increased by 17% per month in the two classes involved. Out of a class of 30 students that is an increase of from 10 graduates to 15 or one half of the class in one month. At a cost of approximately $70 per day per student the government saved $1400 per student. If this program were developed for the entire 25 classes, the government would have the potential to graduate up to 1,625 more students per year from this one school! That is equivalent to a savings of $6,825,000 per year!

Class B comparisons

Compare Class B's learning and progress rates with the schools' in Charts 3 and 4. Note that Class B also began with worse averages than the school, became better after a short time and then remained better, although less so than the dramatic improvement in Class A, throughout the period of this research.

Class C comparisons

Class C's learning rate is clearly worse than the school average throughout the entire research period (Chart 5). In fact, the trend was increasingly worse near the end of that period. In Chart 6, Class C's progress rate fluctuated around the school average, then also, became worse near the end of the research period, although

there is a trend toward the average the last five days.

Class D comparisons

Class D's learning and progress rate is clearly much the same as Class C's progress rate. Both fluctuated around the average, some improvement was noted for a short time, then at the end of the research period, became much worse.

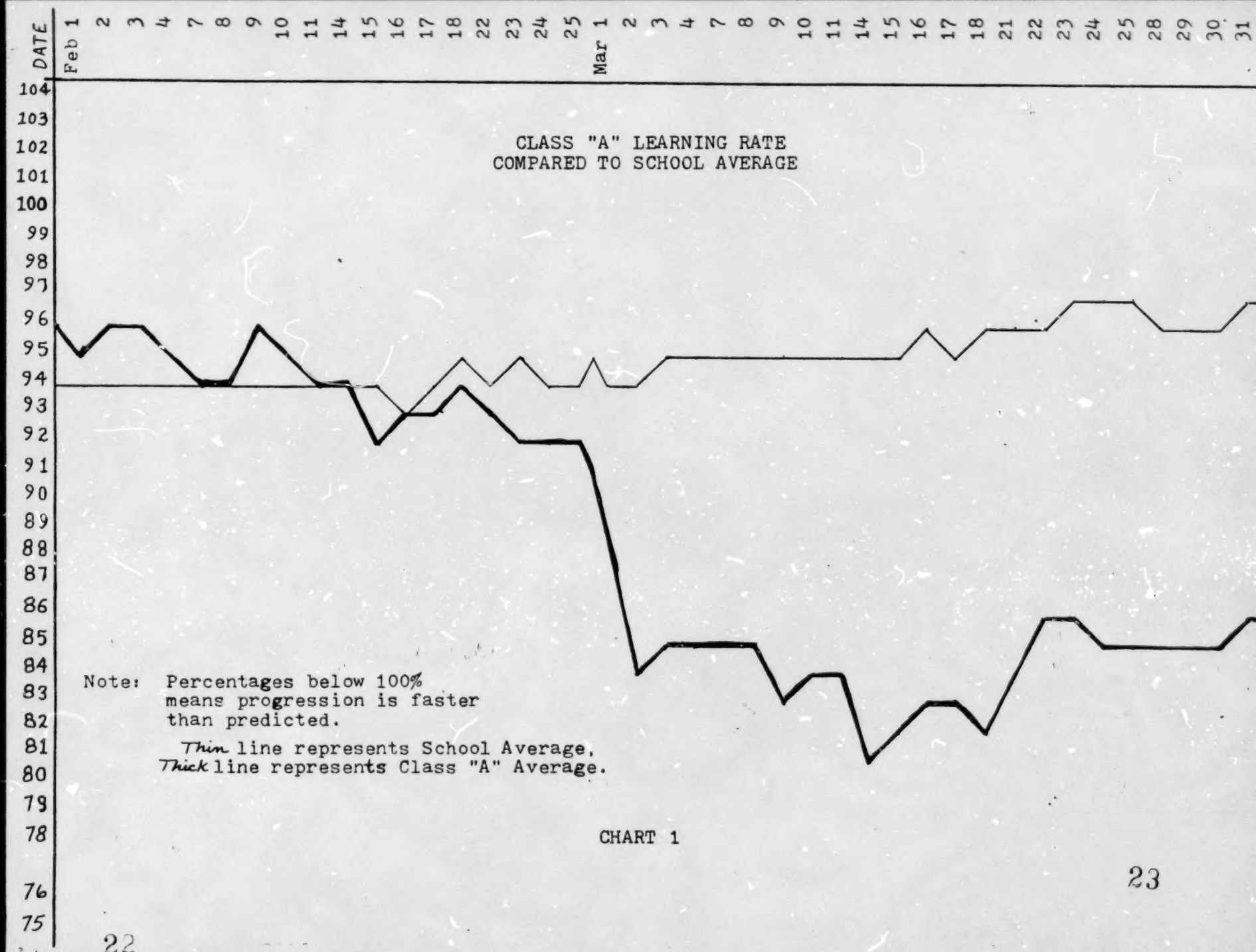
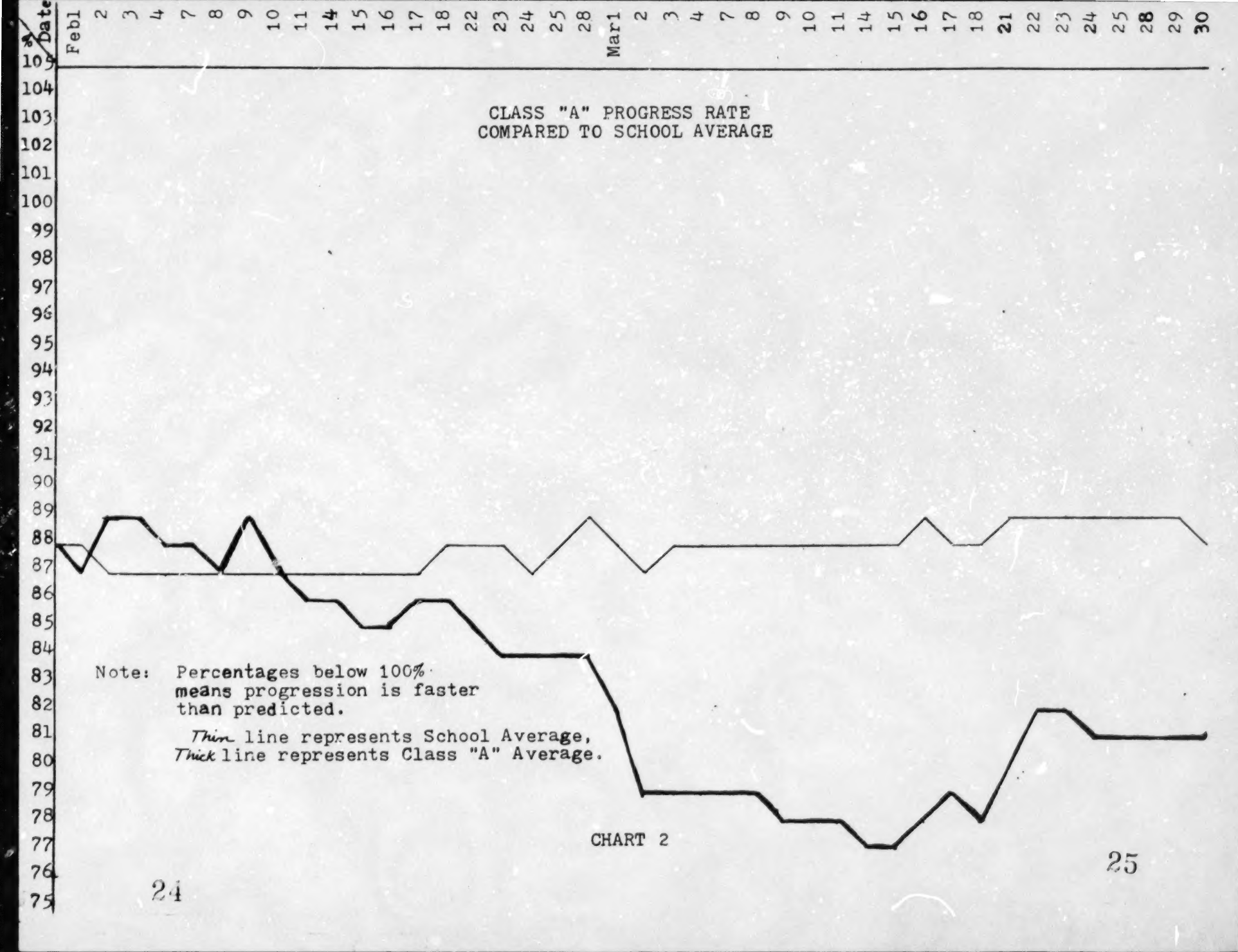

DATE
Feb 1 2 3 4 7 8 9 10 11 14 15 16 17 18 22 23 24 25
Mar 1 2 3 4 7 8 9 10 11 14 15 16 17 18 21 22 23 24 25 28 29 30 31
104 103 102 101 100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 76 75
CLASS "A" LEARNING RATE
COMPARED TO SCHOOL AVERAGE
Note: Percentages below 100% means progression is faster than predicted.
Thin line represents School Average,
Thick line represents Class "A" Average.

CHART 1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Mar1 2 3 4 7 8 9 10 11 14 15 16 17 18 21 22 23 24 25 28 29 30
105 104 103 102 101 100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75
CLASS "A" PROGRESS RATE
COMPARED TO SCHOOL AVERAGE
Note: Percentages below 100% means progression is faster than predicted.
Thin line represents School Average,
Thick line represents Class "A" Average.

CHART 2

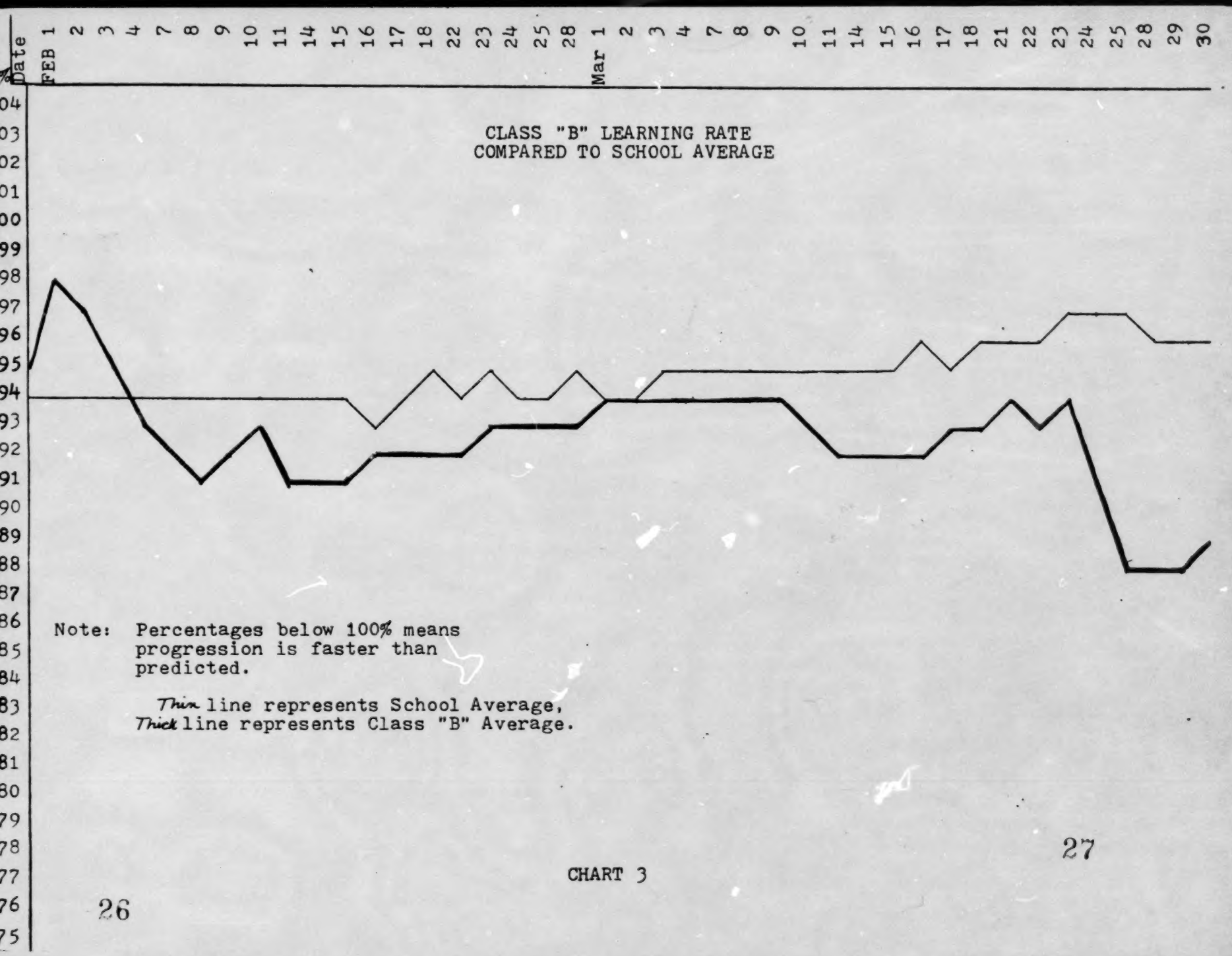
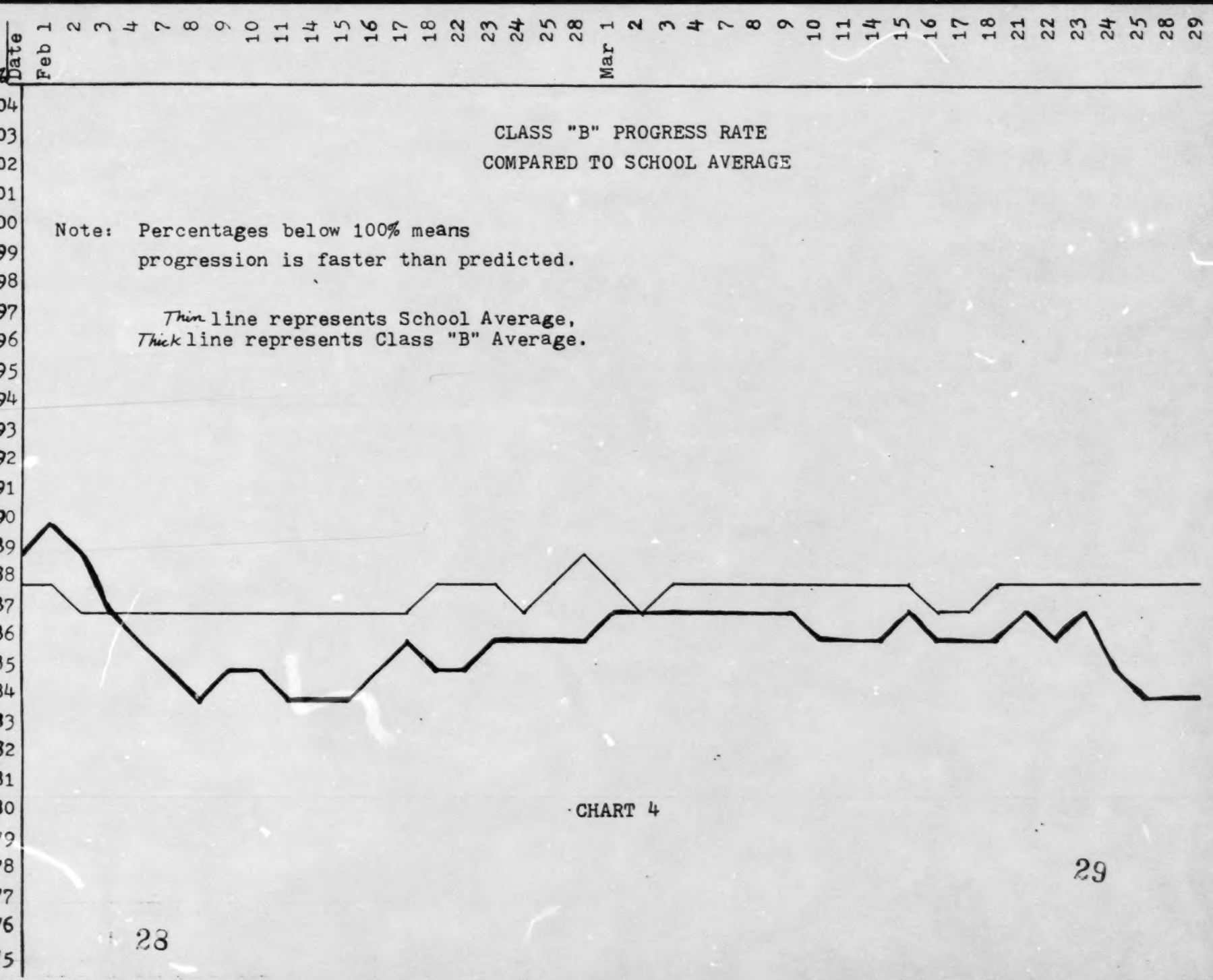

Date
FEB 1 2 3 4 7 8 9 10 11 14 15 16 17 18 22 23 24 25 28
Mar 1 2 3 4 7 8 9 10 11 14 15 16 17 18 21 22 23 24 25 28 29 30
%
104 103 102 101 100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75
CLASS "B" LEARNING RATE
COMPARED TO SCHOOL AVERAGE
Note: Percentages below 100% means progression is faster than predicted.
Thin line represents School Average,
Thick line represents Class "B" Average.

CHART 3

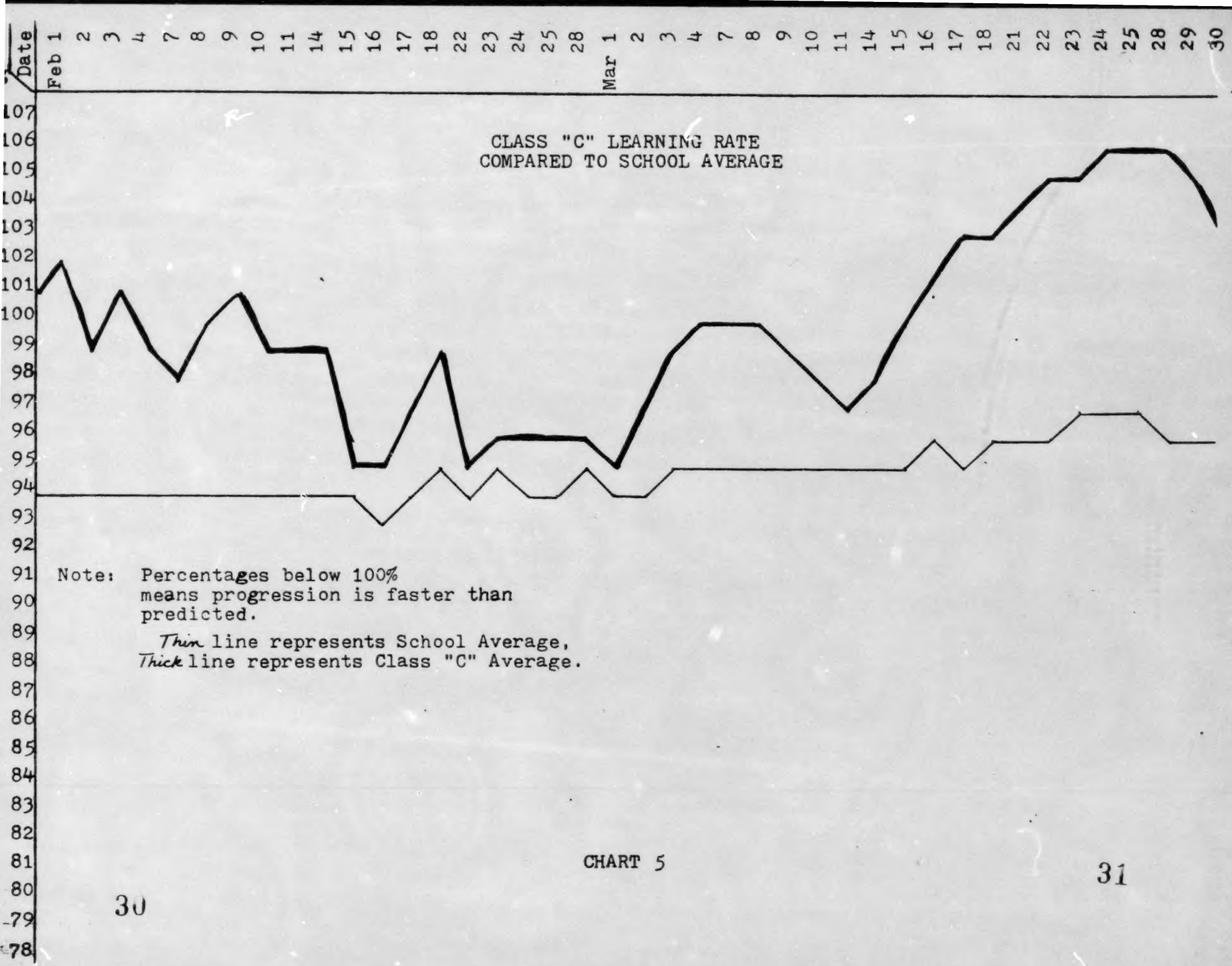



CLASS "B" PROGRESS RATE
COMPARED TO SCHOOL AVERAGE

Note: Percentages below 100% means progression is faster than predicted.

*Thin* line represents School Average,
*Thick* line represents Class "B" Average.

CHART 4


Date
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Mar 1 2 3 4 7 8 9 10 11 14 15 16 17 18 21 22 23 24 25 28 29 30
107 106 105 104 103 102 101 100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78
CLASS "C" LEARNING RATE
COMPARED TO SCHOOL AVERAGE
Note: Percentages below 100% means progression is faster than predicted.
Thin line represents School Average,
Thick line represents Class "C" Average.

CHART 5

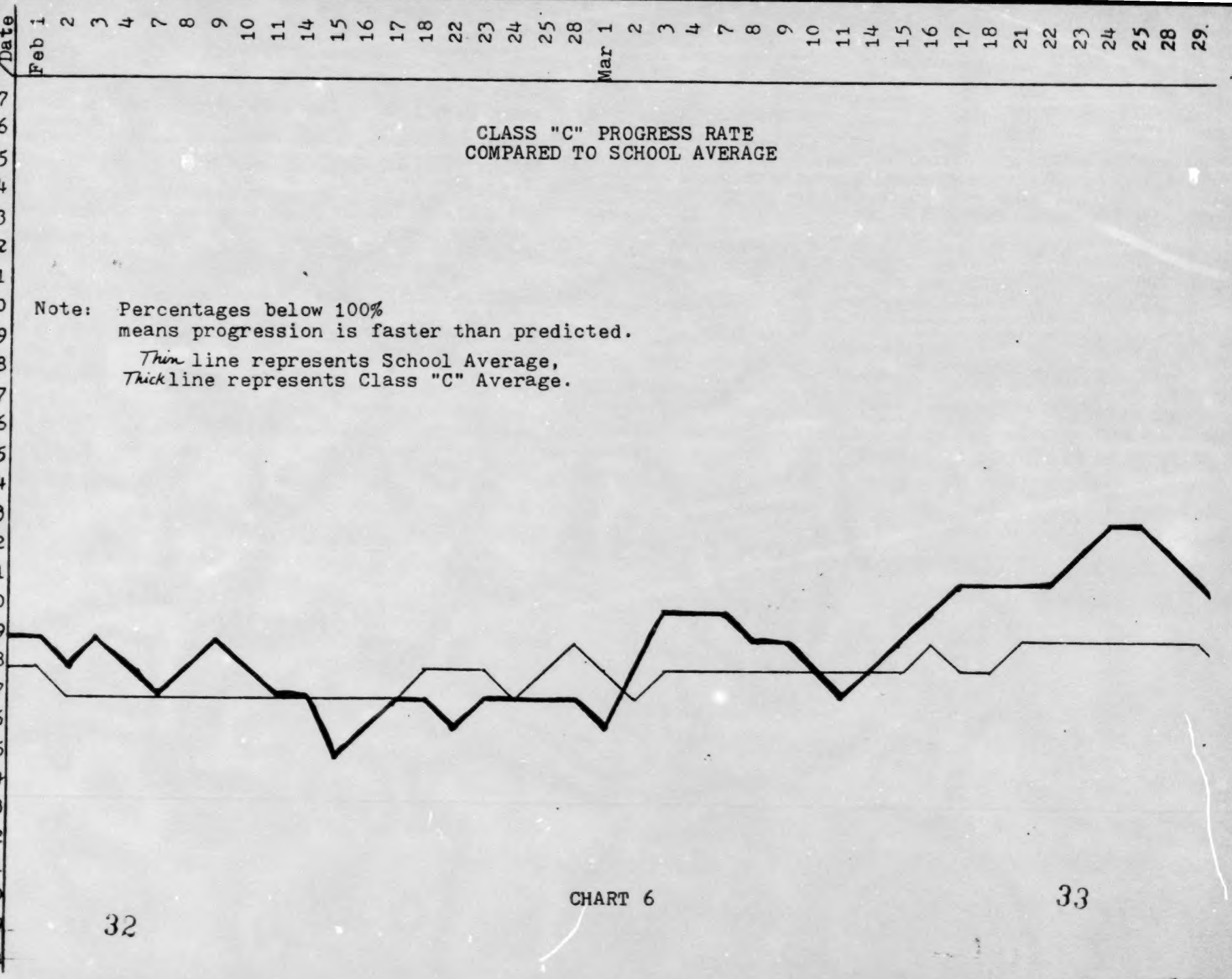
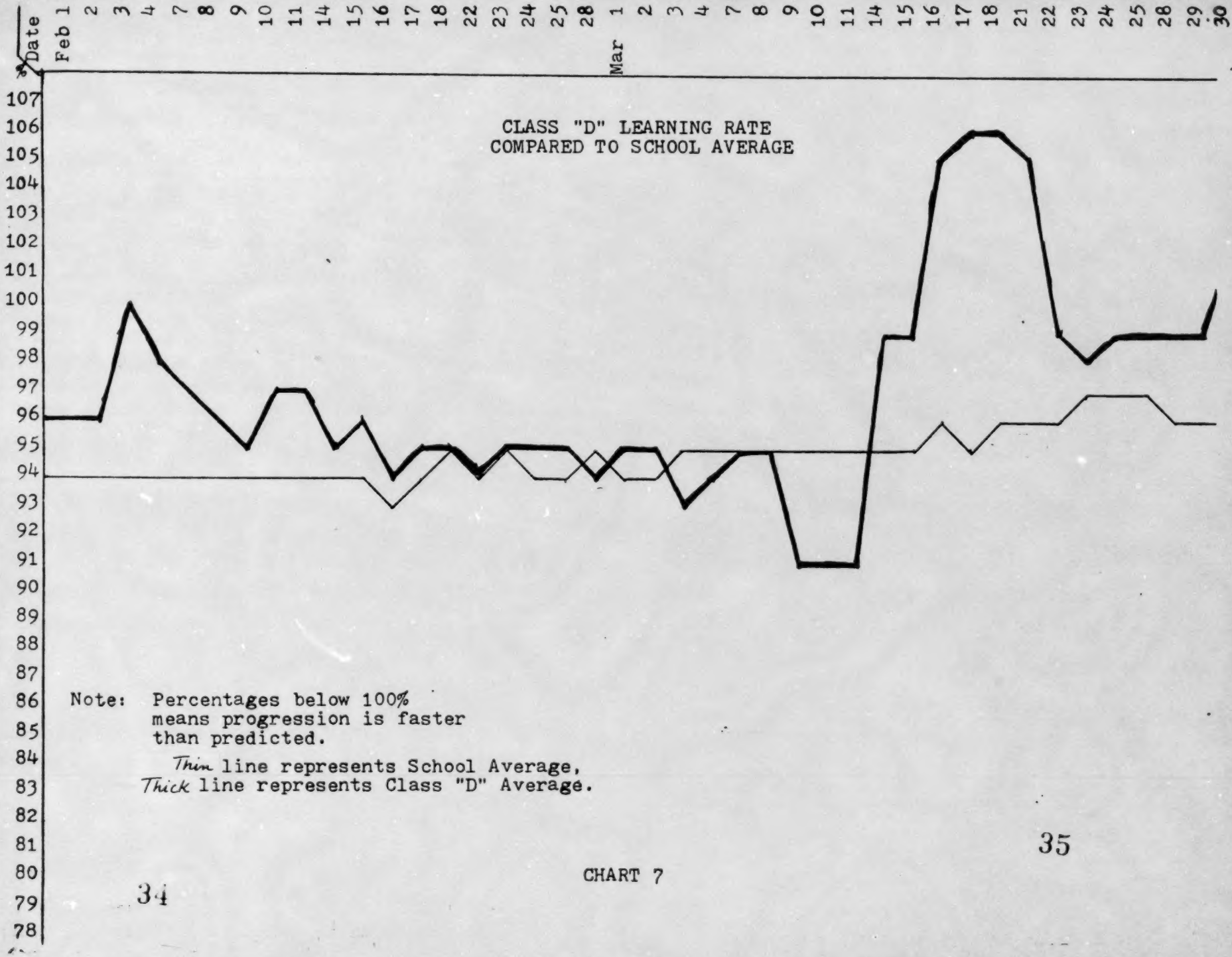

Date
Feb 1 2 3 4 7 8 9 10 11 14 15 16 17 18 22 23 24 25 28
Mar 1 2 3 4 7 8 9 10 11 14 15 16 17 18 21 22 23 24 25 28 29.
107 106 105 104 103 102 101 100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78
CLASS "C" PROGRESS RATE
COMPARED TO SCHOOL AVERAGE
Note: Percentages below 100%
means progression is faster than predicted.
Thin line represents School Average,
Thick line represents Class "C" Average.

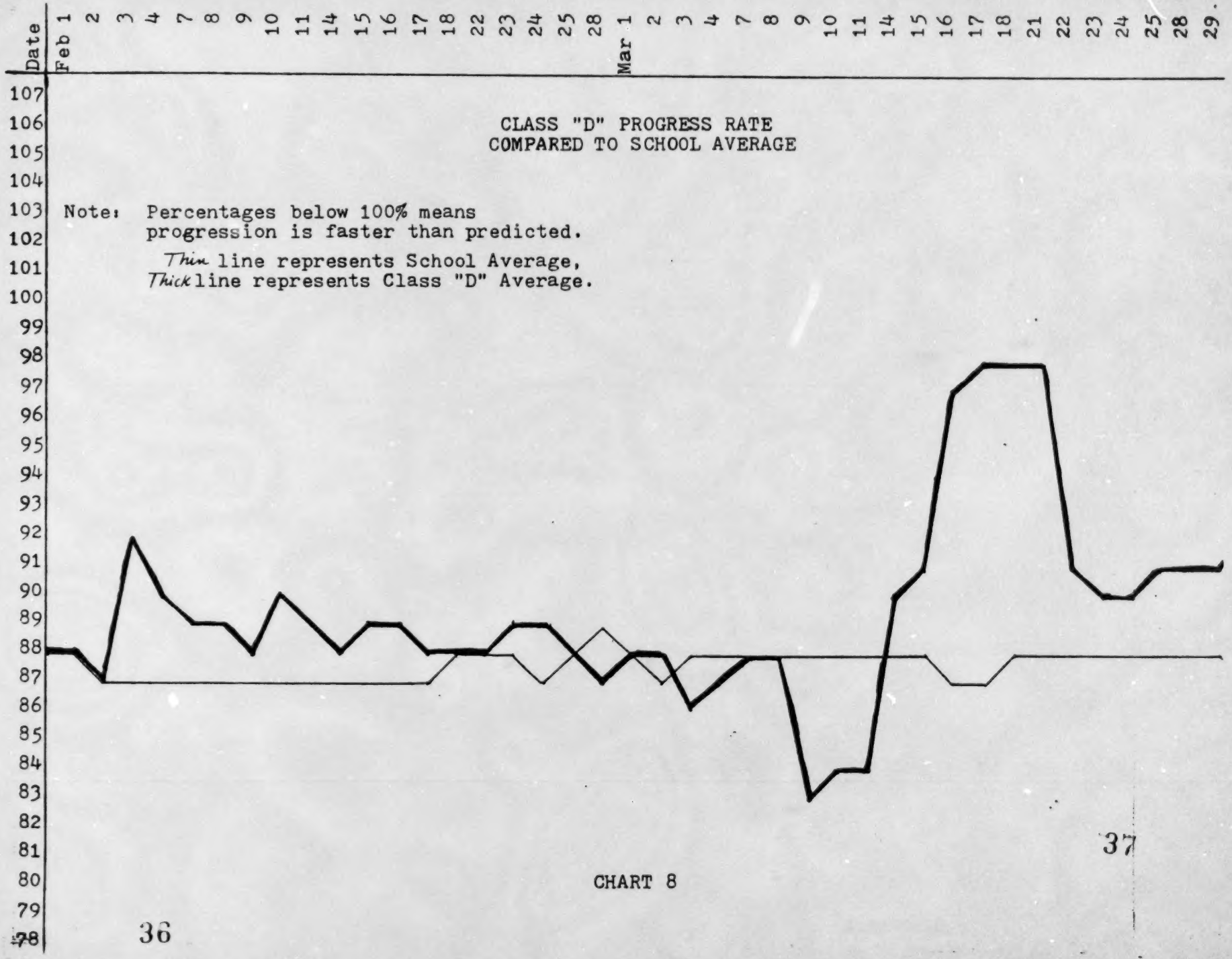
CHART 6




Note: Percentages below 100% means progression is faster than predicted.

*Thin* line represents School Average,
*Thick* line represents Class "D" Average.

CHART 7




CLASS "D" PROGRESS RATE
COMPARED TO SCHOOL AVERAGE

Note: Percentages below 100% means progression is faster than predicted.

*Thin* line represents School Average,
*Thick* line represents Class "D" Average.

CHART 8

Chapter 5

## SUMMARY AND CONCLUSIONS

If proper assumtions have been made and if this research has proceeded unencumbered by bias, then it seems some important conclusions are evident. The first assumption is that motivation in a CMI course can be improved. If that is true it must also be assumed that motivation in a CMI course is inadequate. If these are true, then this research is justified.

The four classes used in this research all began with their statistics at or worse than the school average. The instructors in the two test classes were told to praise publicly any behavior toward improvement. Specifically, after an improvement in progress or rate, a list was posted and the students were lauded. In the two classes used as a Control group, there were no changes at all and the instructors had no idea their class was being used for comparison.

The statistics of the four classes were compared with each other every two weeks and shown in Tables 1 through 4. Comparisons were graphed throughout the research period and are shown in Charts 1 through 8. Represented in both records is a positive correlation that

positive reinforcement does promote improvement in motivation and a corresponding improvement in academic behavior.

As explained by psychologists, the two classes provided with positive motivation began to show decided improvement shortly after it started. By providing immediate praise for good behavior, the behavior became far more frequent. These two classes achieved and maintained better averages throughout the remainder of the research period.

On the other hand, in the two Control classes, the statistics remained very sporadic and overall worse than the school average.

In addition to the obvious improvement in statistics in the test classes, there were some surprising unexpected results. If students are progressing better in a CMI course, then it stands to reason they will graduate sooner. This research has shown that there is potential for a 17% increase in the number of graduates per month, and a savings of almost $7 million per year! That figure should be significant enough to be investigated further over a longer period of time and at other CMI schools.

Recommendations

The statistics used in this research were compiled manually from computer print-outs which was extremely time consuming, especially the statistics for the individual

students on a daily basis. However, the central computer system could be programmed to provide this same information with no effort on the part of an instructor. No research has been done on the cost of such a report, just that it could be done. Without it, the amount of time required to compile the lists would be prohibitive (about one hour per day per class). It is recommended that further research b done to determine other types of motivational efforts and over a longer period of time to determine if the continuation of these efforts would yeild consistant results.

This research seems to give impetus to the adage, "you can attract more bees with honey, than with vinegar." Moreover, two classes of CMI students have received much needed and much deserved praise for their performance.

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The instructor as an evaluator. Computer Managed Instruction, Module 7. Published by direction of Chief of Naval Training, (undated).

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COMPLEX G06212301 DATE: 29 APR 83 DAILY CMI STUDENT PROGRESS REPORT COURSE: 071 PROGRESS REVIEW
L/C 0 HRS=6.0 TIME: 13:07

| CAR SSN/SCN NAME | BR | BEQ RATE | CDP PAT | MOD | AHM LHM | *****CURRENT MOD*** THM PHM | PTC CAL | ADD LOST | AL PL | ********PERFORMANCE THRU LAST MODULE COMPLETED********** ADJCT PCT | PROG | RFQ ADD | ***LEARNING RATE / PROGRESS RATE** -6 | -5 | -4 | -3 | -2 | -1 | LM | P L L I A D E M G 7 2 N P P X O R M M C R R T Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 [redacted] | 11 | | 606N | 014 | 0 | .0 | 33 | 5 | 40 | 268 | 11+ | .0 | .83 | .92 | .82 | .86 | .85 | .88 | .87 | |
| [redacted] MICHAEL | SN | | I | | 0 | 2.4 | 10 | 1 | 46 | 308 | | | .71 | .71 | .70 | .74 | .73 | .76 | .75 | |
| 002 [redacted] | 11 | 321-1 | 609G | 030 | 0 | .3 | 15 | 0 | 72 | 163 | 39+ | .0 | .67 | .67 | .67 | .66 | .66 | .66 | .64 | |
| [redacted] LARRY LEE | | GMG2 | G | | 0 | 3.8 | 18 | 6 | 111 | 254 | | | .67 | .67 | .67 | .66 | .66 | .66 | .64 | |
| 003 [redacted] | 11 | 253-4 | 6414 | 095 | 0 | 2.1 | 20 | 8 | 239 | 364 | 23+ | .0 | .91 | .89 | .90 | .92 | .91 | .91 | .93 | |
| [redacted] PAUL ANDR | SN | | V | | 0 | 5.2 | 61 | 23 | 254 | 391 | | | .88 | .86 | .86 | .89 | .88 | .87 | .90 | |
| 004 [redacted] | 11 | 334-4 | 6369 | 129 | 0 | 2.4 | 12 | 11 | 250 | 326 | 2+ | .0 | .97 | .98 | 1.02 | 1.01 | 1.05 | 1.03 | 1.03 | |
| [redacted] CLARENCE TH | SR | | G | | 0 | 6.3 | 61 | 17 | 241 | 316 | | | .95 | .96 | 1.00 | .99 | 1.02 | 1.01 | .99 | |
| 005 [redacted] | 11 | 161-4 | 6050 | 021 | 0 | 2.1 | 27 | 7 | 70 | 257 | 9+ | .0 | .67 | .68 | .77 | .81 | .82 | .80 | .98 | :M |
| [redacted] JOHN JOS | FN | | E | | 0 | 2.6 | 16 | 1 | 71 | 262 | | | .58 | .59 | .69 | .73 | .74 | .73 | .87 | :M |
| 006 [redacted] | 11 | 334-2 | 6249 | 091 | 0 | 3.4 | 11 | 3 | 214 | 281 | 39+ | .0 | .82 | .79 | .78 | .82 | .82 | .82 | .85 | :M |
| [redacted] GERALD WA | SN | | I | | 0 | 3.9 | 58 | 26 | 250 | 330 | | | .81 | .78 | .77 | .80 | .81 | .80 | .84 | |
| 007 [redacted] | 11 | 252-1 | 606N | 017 | 0 | 4.2 | 32 | 11 | 58 | 294 | 33+ | .0 | .79 | .74 | .74 | .74 | .73 | .72 | .72 | :M |
| [redacted] RONALD ALAN | FR | | I | | 0 | 5.0 | 12 | 2 | 80 | 408 | | | .61 | .59 | .59 | .58 | .57 | .58 | .59 | |
| 008 [redacted] | 11 | | 6414 | 119 | 0 | .9 | 27 | 2 | 115 | 279 | 30+ | .0 | .79 | .80 | .81 | .81 | .81 | .82 | .80 | |
| [redacted] KRAIG ALAN | SN | | V | | 0 | 9.6 | 29 | 7 | 143 | 340 | | | .76 | .78 | .79 | .79 | .79 | .80 | .78 | |
| 009 [redacted] | 11 | | 6256 | 125 | 0 | 5.2 | 9 | 35 | 160 | 229 | 129+ | .0 | .62 | .62 | .61 | .63 | .63 | .62 | .63 | :M |
| [redacted] ROLAND - | SN | | V | | 0 | 4.3 | 33 | 14 | 254 | 363 | | | .48 | .47 | .46 | .49 | .49 | .48 | .49 | |
| 010 [redacted] | 11 | | 6256 | 019 | 0 | 8.2 | 41 | 2 | 46 | 309 | 15+ | .0 | .62 | .63 | .63 | .71 | .73 | .75 | .77 | |
| [redacted] PAUL HENR | SN | | V | | 0 | 15.7 | 12 | 2 | 59 | 401 | | | .62 | .63 | .63 | .71 | .73 | .72 | .74 | |
| 011 [redacted] | 11 | 253-3 | 6414 | 206 | 0 | 6.7 | 40 | 8 | 137 | 396 | 9+ | .0 | 1.01 | 1.02 | 1.01 | 1.00 | .99 | .99 | .99 | |
| [redacted] KEITH MICH | SN | | V | | 0 | 8.7 | 32 | 2 | 138 | 400 | | | .99 | .99 | .97 | .96 | .93 | .94 | .93 | |
| 012 [redacted] | 11 | | 606N | 117 | 0 | 7.4 | 28 | 35 | 224 | 429 | 7+ | .6 | 1.13 | 1.14 | 1.15 | 1.15 | 1.13 | 1.14 | 1.14 | :V |
| [redacted] JAMES ALAN | SN | | I | | 0 | 9.6 | 50 | 13 | 196 | 376 | | | .97 | .98 | .98 | .98 | .96 | .96 | .96 | |
| 013 [redacted] | 11 | 253-3 | 6414 | 091 | 0 | 6.7 | 25 | 3 | 217 | 375 | 31+ | .0 | .87 | .83 | .82 | .85 | .84 | .84 | .88 | :M |
| [redacted] STEPHEN CARR | SN | | V | | 0 | 7.7 | 61 | 36 | 246 | 426 | | | .86 | .83 | .82 | .84 | .83 | .83 | .87 | |
| 014 [redacted] | 11 | | 6249 | 011 | 0 | 4.9 | 38 | 0 | 28 | 261 | 8+ | .0 | .85 | .77 | .75 | .77 | .74 | .75 | .77 | :M |
| [redacted] DAVID AR | SN | | I | | 0 | 6.1 | 10 | 4 | 36 | 339 | | | .85 | .77 | .75 | .77 | .74 | .75 | .77 | |
| 015 [redacted] | 11 | 334-1 | 6370 | 022 | 0 | .0 | 39 | 42 | 159 | 475 | 17- | 4.0 | 1.72 | 1.67 | 1.66 | 1.61 | 1.55 | 1.57 | 1.59 | :MI |
| [redacted] BERNARD EDW | SN | | G | | 0 | 1.1 | 32 | 21 | 100 | 299 | | | 1.25 | 1.24 | 1.20 | 1.18 | 1.11 | 1.14 | 1.17 | |

PGR=9/L7M I=15% D=20%/L2M I=05% D=05%/INC 75%COMP O=50% E=30%/APR= 5DAYS/DPR=20%/EXI=RAND V .5 M2.0 B5.0=DPR X=20% Y=10%/MOD=1.0 HRS

APPENDIX A

TO: STUDENT ADMIN  DATE: 11 APR 83  DAILY CHI LEARNING CENTER STATUS REPORT  COURSE: 071

PGR PARM = 9  TIME: 13:30

| COMPLEX | ID | L/C | ****AVERAGE**** LR | PR | # | ****POPULATION**** NAVY | MAR | FOR | OTH | *** STUDENT ACTIVE | SUSP | LOAD INACT | VACANT | *PROJECTED 0 | 1 | 2 | 3 | 4 | DAYS* CONTACT | ACTIVE STUD LOST | AVG TIN ADD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G | 0621 | 681 1 | 0 | 3.10 | 2.97 | 12 | 9 | 0 | 0 | 25 | 34 | 0 | | 16 | 12 | 5 | 2 | 0 | 0 | 141.1 | 22.9 | 5.6 |
| | | TOTAL | | 3.10 | 2.97 | 12 | 9 | 0 | 0 | 25 | 34 | 0 | 8 | 16 | 12 | 5 | 2 | 0 | 0 | 141.1 | 22.9 | 5.6 |
| G | 0621 | 111 1 | A | 1.02 | .94 | 24 | 29 | 0 | 0 | 0 | 29 | 0 | | 1 | 0 | 0 | 0 | 0 | 1 | 142.5 | 17.8 | 10.0 |
| | | | B | 1.00 | .92 | 29 | 30 | 0 | 0 | 0 | 30 | 0 | | 0 | 0 | 0 | 1 | 1 | 1 | 124.8 | 32.7 | 10.4 |
| | | | C | 1.01 | .94 | 27 | 30 | 0 | 0 | 0 | 30 | 0 | | 0 | 0 | 0 | 1 | 0 | 0 | 143.9 | 17.9 | 10.0 |
| | | TOTAL | | 1.01 | .93 | 80 | 89 | 0 | 0 | 0 | 89 | 0 | 3 | 1 | 0 | 0 | 2 | 1 | 2 | 137.0 | 22.9 | 10.4 |
| G | 0621 | 112 1 | D | 1.00 | .92 | 23 | 28 | 0 | 0 | 0 | 28 | 0 | | 7 | 0 | 1 | 1 | 1 | 0 | 140.7 | 21.1 | 11.2 |
| | | | E | .95 | .88 | 28 | 29 | 1 | 0 | 0 | 30 | 0 | | 5 | 0 | 0 | 0 | 1 | 1 | 146.6 | 12.7 | 13.1 |
| | | TOTAL | | .97 | .90 | 51 | 57 | 1 | 0 | 0 | 58 | 0 | 0 | 12 | 0 | 1 | 1 | 2 | 1 | 143.8 | 16.8 | 12.5 |
| G | 0621 | 130 1 | H | .90 | .85 | 25 | 28 | 0 | 1 | 0 | 29 | 0 | | 1 | 0 | 1 | 0 | 1 | 0 | 130.2 | 18.4 | 8.3 |
| | | | I | .87 | .83 | 26 | 29 | 0 | 0 | 0 | 29 | 0 | | 1 | 0 | 0 | 2 | 1 | 0 | 126.5 | 20.3 | 8.2 |
| | | | J | .82 | .77 | 27 | 29 | 0 | 0 | 0 | 29 | 0 | | 1 | 0 | 0 | 0 | 0 | 0 | 87.8 | 10.9 | 6.2 |
| | | TOTAL | | .86 | .81 | 78 | 86 | 0 | 1 | 0 | 87 | 0 | 3 | 3 | 0 | 1 | 2 | 2 | 0 | 117.5 | 16.5 | 6.2 |
| G | 0621 | 212 1 | K | .96 | .84 | 28 | 30 | 0 | 0 | 0 | 30 | 0 | | 0 | 0 | 1 | 2 | 2 | 1 | 155.3 | 21.3 | 10.7 |
| | | | L | .88 | .83 | 27 | 30 | 0 | 0 | 0 | 30 | 0 | | 0 | 0 | 0 | 2 | 0 | 2 | 167.7 | 25.4 | 9.7 |
| | | TOTAL | | .92 | .84 | 55 | 60 | 0 | 0 | 0 | 60 | 0 | 3 | 0 | 0 | 1 | 4 | 2 | 3 | 161.5 | 23.3 | 10.2 |
| G | 0621 | 218 1 | M | .90 | .85 | 29 | 30 | 0 | 0 | 0 | 30 | 0 | | 0 | 0 | 0 | 0 | 1 | 2 | 160.4 | 21.3 | 8.9 |
| | | | N | .88 | .83 | 26 | 28 | 0 | 0 | 0 | 28 | 0 | | 2 | 0 | 0 | 0 | 0 | 2 | 129.5 | 13.5 | 8.4 |
| | | TOTAL | | .89 | .84 | 55 | 58 | 0 | 0 | 0 | 58 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 4 | 145.5 | 17.6 | 8.9 |
| G | 0621 | 230 1 | O | .89 | .82 | 27 | 28 | 0 | 0 | 0 | 28 | 0 | | 2 | 0 | 1 | 2 | 2 | 0 | 172.4 | 23.1 | 10.8 |
| | | | P | 1.00 | .91 | 24 | 29 | 0 | 0 | 0 | 29 | 0 | | 1 | 0 | 0 | 1 | 1 | 0 | 103.5 | 23.0 | 15.1 |
| | | | Q | 1.01 | .88 | 26 | 29 | 0 | 0 | 0 | 29 | 0 | | 1 | 0 | 2 | 1 | 1 | 0 | 184.2 | 25.5 | 22.5 |
| | | TOTAL | | .96 | .87 | 77 | 86 | 0 | 0 | 0 | 86 | 0 | 3 | 4 | 0 | 3 | 4 | 4 | 0 | 173.4 | 23.9 | 16.2 |
| G | 0621 | 231 1 | R | .89 | .82 | 25 | 28 | 1 | 1 | 0 | 30 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 143.5 | 18.7 | 12.3 |
| | | | S | 1.09 | 1.01 | 25 | 30 | 0 | 0 | 0 | 30 | 0 | | 0 | 1 | 0 | 0 | 0 | 1 | 146.5 | 12.4 | 11.9 |
| | | TOTAL | | .99 | .92 | 50 | 58 | 1 | 1 | 0 | 60 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 145.0 | 15.6 | 11.9 |
| G | 0621 | 312 1 | T | 1.00 | .94 | 23 | 27 | 0 | 0 | 0 | 27 | 0 | | 3 | 0 | 0 | 1 | 1 | 0 | 187.0 | 24.3 | 12.8 |
| | | | U | .91 | .84 | 28 | 29 | 0 | 0 | 0 | 29 | 0 | | 1 | 0 | 0 | 1 | 1 | 0 | 180.4 | 23.3 | 13.9 |
| | | TOTAL | | .95 | .89 | 51 | 56 | 0 | 0 | 0 | 56 | 0 | 3 | 4 | 0 | 0 | 2 | 2 | 0 | 183.6 | 23.8 | 13.6 |

PGR=9/L7H I=15I D=20I/L2H I=05I D=05I/INC 75ICOMP D=50I E=30I/SPRG SDAYS/DPRGEGS/EXTRRADU V .5 AZ.0 B5.0=DPR X=20I Y=10I/MODE=1.0 M







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